

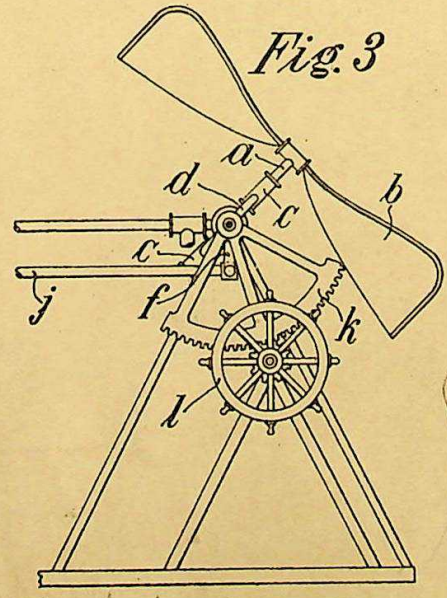
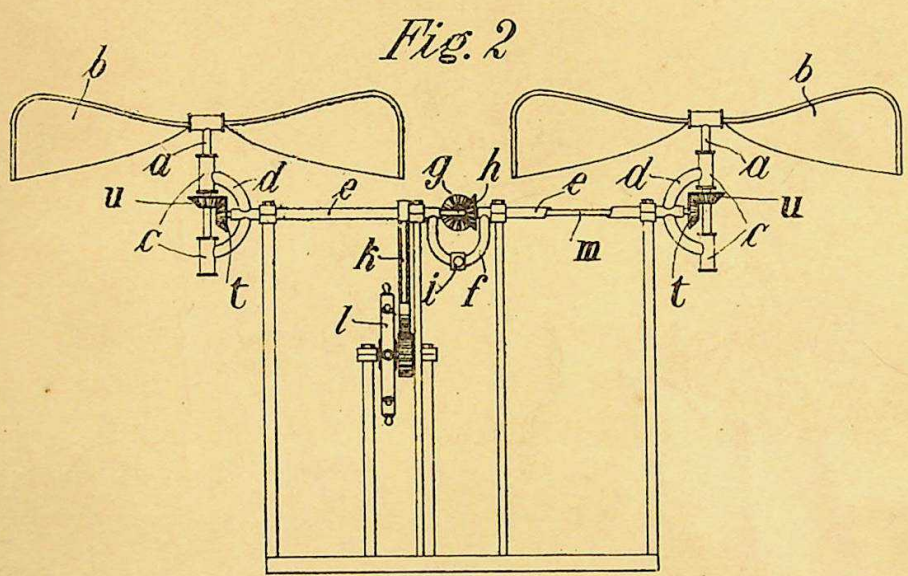
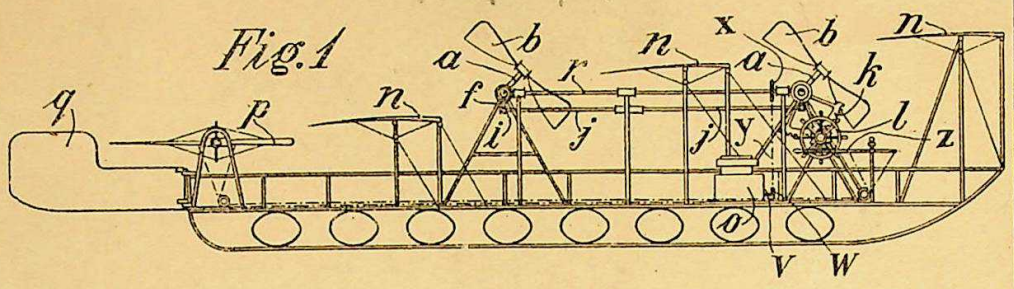
416  
120

170-1352

A.D. 1910, JAN. 29. N<sup>o</sup>. 2294.  
KRESS' COMPLETE SPECIFICATION.

(1 SHEET)

[This Drawing is a reproduction of the Original on a reduced scale.]



Supplied + pro

Dep. Branch 412,059 Kress (199-14)



244-25  
244-15  
N<sup>o</sup> 2294



22  
A.D. 1910

(Under International Convention.) Duplicate.

Date claimed for Patent under Patents and Designs  
Act, 1907, being date of first Foreign Appli- } 23rd Feb., 1909  
cation (in Austria), }

Date of Application (in the United Kingdom), 29th Jan., 1910

At the expiration of twelve months from the date of the first Foreign Application,  
the provision of Section 91 (3) (a) of the Patents and Designs Act, 1907,  
as to inspection of Specification, became operative

Accepted, 19th May, 1910

#### COMPLETE SPECIFICATION.

##### Improvements in Flying Machines.

I. WILHELM KRESS, of 13, Waaggasse, Vienna IV, Austria, Engineer, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

5 This invention relates to a flying machine in which two propellers are mounted on the ends of a hollow axle cranked in the middle, that contains the shafts for driving the propellers. The two propellers can be adjusted simultaneously by turning the hollow axle, in such a manner as to enable them to act as propelling screws or as lifting screws.

10 The invention consists in that this turning movement is effected in the improved apparatus by means of a toothed sector mounted on the hollow axle and operated by a controlling wheel.

A rod is connected to the cranked part of the hollow axle for the purpose of enabling the turning movement to be transmitted to the second pair of  
15 propellers.

In the accompanying drawings:

Figure 1 is a side elevation, showing by way of example one form of the improved apparatus.

20 Figures 2 and 3, are respectively end and side elevations of part of Figure 1 drawn to a larger scale.

The shafts *a* (which are adjustable through 90 degrees) of the propellers *b*, run in double ball bearings *c* provided on the forked ends *d* of the rotary hollow axles *e*. These rotary hollow axles *e* in which the driving shafts are situated, are interrupted in the middle by bows *f* for the purpose of providing room for the bevel wheels *g* and *h*. The bows *f* have in the middle a movable joint *i*.

25 The connecting rod *j* (Figure 1) connects together the two joints *i* of the two bows *f* and therefore also the two hollow axles *e*.

On the front hollow shaft *e* there is keyed a sector of a toothed wheel *k* (Figure 3) which can be rotated through 90 degrees by means of the adjusting  
30 toothed wheel *l*. By rotating the adjusting toothed wheel *l* the hollow axles *e* and consequently the shafts *a* of the propellers *b* can be turned slowly through 90 degrees from the vertical position into the horizontal position and reversely from the horizontal position into the vertical position during flight.

[Price 8d.]



*Kress's Improvements in Flying Machines.*

The following effects are produced by turning over the shafts *a* of the propellers *b*.

If the shafts *a* of the propellers *b* are vertical as shown in Figure 2, and the motor be started, the apparatus rises directly into the air from the ground like a helicopter. If then the shafts *a* of the propellers *b* be inclined suitably (as in Figure 1) by means of the adjusting toothed wheel, the apparatus will receive a corresponding lateral movement, and the supporting planes *n* Figure 1, (which are arranged separate from one another in stages one behind another) will receive an upward impulse. The more the shafts *a* of the propellers *b* are turned over into a horizontal position the more quickly will the horizontal motion become and the greater will be the upward impulse of the supporting planes *n*, until finally when the shafts *a* have been completely turned over into the horizontal position, the flying machine will have acquired its maximum horizontal velocity as an aeroplane.

The machine can with equal certainty be converted with any desired slowness back again into a helicopter by turning the shafts *a* of the propellers *b* over from the horizontal back into the vertical position with any desired slowness during flight.

*o* indicates the motor; *p* is the elevating rudder, and *q* the side-steering rudder, which are controlled by means of the lever *z* that is common to both.

*r* (Figure 1) is the driving shaft which receives its power from the motor shaft *x* by means of the chain wheel *y* and the chain wheels *w* and *x*. On the ends of the driving shaft *r* are keyed the bevel wheels *g* which engage with the bevel wheels *h* that are mounted on the driving shafts *m* which run in the hollow axles *e*.

On the ends of the driving shafts *m* are keyed the bevel wheels *t* which engage with the bevel wheels *u* that are mounted on the shafts *a* of the propellers *b*.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. In a flying machine having two propellers mounted in the forked ends of a rotatable cranked hollow axle which are adjusted simultaneously, the arrangement is that the adjusting of the propellers is effected by means of a toothed wheel sector mounted on the hollow axle and operated by a controlling wheel, and a drag rod is connected to the cranked part of the hollow axle for transmitting the turning motion to a second pair of propellers, substantially as and for the purposes hereinbefore described.

Dated this 29th day of January, 1910.

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